

REMARKS

Claims 2 and 4-19 are pending in this application. In the Office Action mailed May 5, 2004, claims 5, 16, and 18 were rejected and claims 17 and 19 were objected to. Applicants wish to thank the Examiner for the indication of allowable subject matter in claim 17 and 19. By this Preliminary Amendment, claims 16, 17, and 19 have been amended, claims 17 and 19 have been rewritten in independent form. No new matter has been added. The amendments made to the claims do not alter the scope of these claims, nor have these amendments been made to define over the prior art. Rather, the amendments to the claims have been made for cosmetic reasons to improve the form thereof. In light of the amendments and remarks set forth below, Applicants respectfully submits that each of the pending claims is in immediate condition for allowance.

Claims 5, 16, and 18 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,567,244 (“Gill”) in view of U.S. Patent No. 6,710,986 (“Sato”). Applicants respectfully traverses this rejection.

To establish a *prima facie* case of obviousness, the prior art references must also teach or suggest all the limitations of the claim in question. See, M.P.E.P. § 706.02(j). A reference can only be used for what it clearly discloses or suggests. See, In re Hummer, 113 U.S.P.Q. 66 (C.C.P.A. 1957); In re Stencel, 4 U.S.P.Q.2d 1071, 1073 (Fed. Cir. 1987). Here, the references, whether taken individually or in combination, do not disclose or suggest the invention claimed by the Applicant.

Claim 16 recites, “a pair of physically separated magnetic tunnel junction structures supported on a single flat surface of a substrate..., and an upper electrode electrically connected to the upper magnetic layer and electrically connected to another magnetic layer which is included in either one of another pair of magnetic tunnel junction structures.” In other words, according to the present invention, pairs of tunnel diode structures are provided. Upper electrodes contained in the tunnel diode structures connect the pairs of tunnel junction diodes in series.

The Office Action asserts that Gill discloses a pair of magnetic tunnel junction structures shown in Figure 11 and discussed at column 5, lines 30-32. The Office Action goes on to admit that Gill does not disclose the structure relationship of a barrier film, lower and upper magnetic layer, a conductive layer, a substrate and upper electrode layer as recited in claim 1. Nor does Gill disclose the electrode electrically connected to the upper magnetic layer and electrically connected to another magnetic layer. To cure these deficiencies, the Examiner includes the Sato reference. However, Sato fails to cure the deficiencies in Gill.

In Sato, barrier layer 310 is sandwiched between magnetic layers 110 and 210 as shown in Fig. 2. An electrode is shown on the upper magnetic layer 110 and a lead wire is shown on the lead wire layer 410. However, Sato fails to disclose the electrode electrically connected to the upper magnetic layer and electrically connected to another magnetic layer. As such, the combination of Gill and Sato do not disclose Applicant’s explicitly recited limitations. Accordingly, claims 1 and 5 are allowable over the combination of Gill and Sato.

Claims 2, 4, 5, and 18 depend from, and contain all the limitations of claim 16. These dependent claims also recite additional limitations which, in combination with the limitations of claim 16, are neither disclosed nor suggested by Gill and are also directed towards patentable subject matter. Thus, claims 2, 4, 5, and 18 should also be allowed.

Applicants have responded to all of the rejections and objections recited in the Office Action. Reconsideration and a Notice of Allowance for all of the pending claims are therefore respectfully requested.

In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. Accordingly, the Examiner is respectfully requested to withdraw the outstanding rejection of the claims and to pass this application to issue.

If the Examiner believes an interview would be of assistance, the Examiner is welcome to contact the undersigned at the number listed below.

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Respectfully submitted,

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